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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,907	12/14/2000	Hironori Kikkawa	Q62301	5747

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EXAMINER
AKKAPEDDI, PRASAD R

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/735,907	Applicant(s) KIKKAWA, HIRONORI	
	Examiner Prasad R Akkapeddi	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *10 and 11* is/are withdrawn from consideration.

5)☒ Claim(s) *3 and 4* is/are allowed.

6)☒ Claim(s) *1,2 and 5-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *7* .
4) ☒ Interview Summary (PTO-413) Paper No(s). *8* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. The amendment under 37 CFR 1.111 filed 08/22/2002 is insufficient to overcome the rejection of claim1-2 and 5-9 based upon Okamoto and Miyazawa as set forth in the last Office action dated 05/22/2002 because:

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto et al (okamoto) (U.S.Patent No. 5,825,445)

As to claims 1 and 2: Okamoto in Fig 3 and in (Cols. 11 and 12) discloses a OCB type liquid crystal display with an active matrix substrate 12, having TFTs 12b, signal lines and scanning lines (not shown), pixel electrode 12a, and an opposing substrate 11 with a common electrode 11a and a liquid crystal 13 interposed between the two substrates and the rubbing directions RA of the two substrates ran parallel (same direction) and the orientation directions are limited to within 45 degrees (see Fig. 4). Fig. 4 shows a pixel area that the substrates are treated so as to have the same orientation directions (arrows shown as RA) and the orientation directions are limited to +/- 45 degrees with respect to the X-axis (short axis) direction of the pixel electrode.

3. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyazawa (U.S.Patent No. 6,011,604) in view of Okamoto (U.S.Patent No. 5,825,445).

As to claims 5-9: Although Okamoto discloses an OCB type LCD device with TFT structure, and teaches the arrangement of the liquid crystals in the bend mode and the rubbing direction being in the same direction, he does not go into

details of the TFT substrate itself. Miyazawa on the other hand, in Fig 2, discloses an active matrix LCD with a lower substrate 24 and an upper substrate 25, plurality of signal lines 32, plurality of scanning lines 31, a common electrode 44 on the top transparent substrate, a pixel electrode 34, a compensation electrode 35 between the scanning lines 32. (Note: Though the claim 5 of the applicant claims that the compensation electrode 17 is formed in the same layer as that of the scanning line 31 or the signal line between the scanning line and the signal line, the actual representation in Fig 9, does not show this to be the case. The compensation electrode 17 is actually shown to be in the lower layer than the scanning or signal lines) similar to the teachings of Miyazawa.

The overlap of the electrode 35 is also shown to overlap electrode 34. The connection of the electrode 35 to the scanning line of the adjacent pixel region is shown in Fig. 14. In Figs 4-11, Miyazawa also discloses the effect of varying the cell gap (i.e., adjusting the pixel electrode closer to the common electrode 44) on the electric field. Fig. 2 also shows that the opposing surface of the active matrix substrate is formed into a flat region, by the alignment layers being flat. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the LCD structure described by Miyazawa to the OCB type structure described by Okamoto, because incorporation of the compensation electrode into the TFT substrate and further making the opposing surfaces flat will minimize the optical leakage due to

disinclinations and further suppress disturbances of the liquid crystal molecules due to nearby electric fields or irregularities of the surface orientations.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 recites the limitation "short axis" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

5. Claims 3 and 4 are allowed.

6. The following is an examiner's statement of reasons for allowance:

A search of the prior art did not disclose a n OCB type liquid crystal display device comprising a combination of structural elements, more specifically:

(a) The pixel electrode is formed in a layer located closer to the common electrode than the signal lines and the scanning lines.

(b) A side portion of the pixel electrode overlaps at least partially with a side portion of the signal line or the scanning line.

The prior art, Miyazawa, shows that the pixel electrode (34), the scanning line (31, not shown) and the signal line (32) are all formed in the same layer (Fig. 2) and does not show any overlap.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments filed on 08/22/2002 have been fully considered but they are not persuasive with respect to claims 1-2 and 5-9.

8. Applicant's argument No. 1: Okamoto fails to teach that the orientation directions of the liquid crystal are limited to +/- 45 degrees of the short axis of the pixel electrode.

Examiner's response to argument No. 1: Okamaoto does teach (Fig. 4) that in a pixel area, the substrates are treated so as to have the same orientation directions (arrows shown as RA) and the orientation directions are limited to +/- 45 degrees with respect to the X-axis (short axis) direction of the pixel electrode.

9. Applicant's argument No. 2: The Examiner appears to be mistaking the signal line 31 for the scanning line.

Examiner's response to argument No. 2: Miyazawa clearly in (Col. 5, line 9) discloses that feature (31) is the scanning line. So, there is no mistake by the Examiner.

10. Applicant's argument No. 3: The compensation electrode is formed in the same layer as that of the scanning line and in between the pixel electrode and the scanning electrode.

Examiner's response to argument No. 3: As originally mentioned in the office action dated May 15, 2002, though the applicant discloses this feature in the

specification, the applicant does not show this feature in Figure 9. The applicant on page 22 lines 17-24 and on page 23 lines 1-4 goes into extensive argument that supports the drawing as per Fig. 9. If the compensation electrode (17) is actually formed in the same layer as the scanning line (31), the Examiner fails to see how the force lines of the electric field Ef1 are formed vertically (page 22, line 18) between the pixel electrode (41) and the compensation electrode (17). The applicant was given a chance to explain this in the original office action, but failed to do so.

11. Applicant's argument No. 4: Miyazawa does not teach or suggest that a flat surface nor the effects of such flatness on the disinclination.

Examiner's response to argument No. 4: Claim 9 merely recites that 'the opposing surface of the active matrix substrate is formed into a flat surface'. The claim does not include any limitations regarding any roughness or any disinclination. Fig. 2 of Miyazawa clearly shows that opposing surface (45) is flat.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

RRA

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October 31, 2002

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800